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Formulation and Evaluation of Herbal lipstick by using Delonix Regia

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ABSTRACT

The increasing demand for natural and safe cosmetic products has led to significant interest in herbal formulations. This study focuses on the formulation and evaluation of an herbal lipstick utilizing Delonix regia (commonly known as Gulmohar) flower extract as a natural colorant and bioactive ingredient. The petals of Delonix regia are rich in flavonoids and natural pigments, offering both aesthetic appeal and potential antioxidant properties. The lipstick was formulated using natural ingredients including beeswax, cocoa butter, shea butter, and essential oils to enhance the product's stability, texture, and therapeutic benefits. The prepared lipstick was evaluated for various physicochemical parameters such as melting point, spreadability, hardness, pH, and stability, along with microbial load and skin irritation potential. The results indicated that the herbal lipstick possessed desirable cosmetic properties, good color stability, and was safe for topical application. This study highlights the potential of Delonix regia as a viable and effective natural colorant in herbal cosmetic formulations.Now-a-days herbal lipsticks are gaining popularity because natural cosmetics are safe to use And easy to handle by women

Keywords : Herbal Lipstick, Lipcare Formulation, Natural Colorant, Antipigmentetic Agent.

Introduction

The Greek term "kosmtikos," which denotes the ability, organization, and art of beautifying, is where the word "cosmetics" originates. 18Herbal cosmetic products are in high demand in the global market, and they are a precious gift from nature. There is a wide range of herbal cosmetic items to convince our beauty regime. 19

Now-a-days herbal lipsticks are gaining popularity because natural cosmetics are safe to use And easy to handle by women. Synthetic coloring agents may cause allergic reactions and were found to be Carcinogenic in nature.A cosmetic product called lipstick is applied to the lips to color them and shield them from the outside world. The tradition of coloring lips dates back to the prehistoric era. The usage of herbal products has grown in recent .years, and the range of color, texture, and gloss options has expanded. This is evident from THE fact that lipstick is sold in a hundred different shades to meet the most recent demands of ladies. When consumed by humans, the dyes that give lipstick its color are extremely toxic.5-8Every woman's life now revolves around cosmetics. Products made with a variety of approved cosmetic ingredients, including one or more herbal compounds, that offer unique cosmetic benefits are known as herbal cosmetics .1-4

numerous antioxidants, which are popular functional natural compounds in cosmetics, have been scientifically shown to provide extra advantages in promoting skin tone and texture. in addition to being devoid of gritty particles, lipsticks should be non-toxic and non-irritating, stable both chemically and physically, and able to retain lip color for a longer amount of time after application . 17

Types of lipstick:
depending on the thickness of cosmetic products, there can be many types such as lipstick, lipstick, lipstick and liquid lipstick. by the number of secondary functions lipsticks can be divided into:

1. Matte lipstick: provides a flat, non-shiny finish and tends to be long-lasting.
2. Cream lipstick: offers a creamy texture with a bit of shine, providing hydration to the lips.
3. Satin lipstick: combines the richness of matte with a subtle sheen, offering a smooth finish.
4. Gloss lipstick: provides a high-shine finish for a wet look and is often more sheer in color.
5. Sheer lipstick: offers a translucent color, allowing the natural lip color to show through.
6. Lip stain: provides a long-lasting tint to the lips, giving a natural and subtle appearance.

7. Liquid lipstick: comes in a liquid form, drying to a matte or semi-matte finish for long-lasting wear.
8. Metallic lipstick: contains metallic pigments for a shimmery and reflective finish.
9. Pearl/frost lipstick: offers a frosted or pearlized finish with a slightly metallic shine.
10. Hydrating lipstick: infused with moisturizing ingredients to keep lips hydrated, often with a satin finish.
11. Long-wearing lipstick: formulated for extended wear, resisting smudging and fading throughout the day.
12. Lip crayon: a pencil-like lipstick that is easy to apply and often provides a matte or satin finish
13. Two-tone lipstick: features two complementary shades in one bullet, creating a gradient or ombre effect.
14. Color-changing lipstick: reacts with the ph of your lips to create a custom color based on your skin's chemistry.
15. Velvet lipstick: offers a smooth and soft finish, sitting between matte and cream lipsticks in terms of texture. 16

Ideal Charateristics of Herbal Lipstick:

1. One of the best qualities of herbal lipsticks is that they are easy to apply and smooth.
2. It doesn't cause irritation or harm.
3. Its color, smell, texture, packaging, and particular plasticity are all different.
4. There is no pollution.
5. There are no grit particles in it.
6. It doesn't harden or melt when the temperature varies.
7. The lipstick should not blossom or sweat while being stored, and it should have a constant shelf life.
8. The degree of indelibility should be high.
9. It must not dry out.
10. It shouldn't become less glossy while being stored. 9-10

Benefits of Herbal Lipstick:

1. it is safe.
2. It's a part of nature.
3. It is inexpensive and economical.
4. There are no adverse consequences.
5. It doesn't contain any dangerous ingredients.
6. It is more environmentally friendly.
7. No animal testing is done on it. 11

MATERIALS AND METHODOLOGY

Material

Plant profile :Delonix regia

Delonix regia is a flowering plant of the bean family Fabaceae, subfamily Caesalpinioideae.r. The plant is known for its fern-like leaves and colorful orange-red flowers throughout the summer. This tree is commonly grown as an ornamental in tropical regions worldwide. It is not a nodulating legume. Although the country of origin was unclear, it had been widely cultivated for millennia. The tree is grown in India, where it is known as the Gulmohar, Gul Mohr, or May-flower tree. 11In the current study, two herbal lipsticks were created using different ethanolic extracts of Royal Poinciana and Canna indica flowers. First, use these flower extracts to create two herbal lipsticks that no one else has used for this purpose. You should also research several evolution tests. Each and every herbal lipstick is created using extracts of pomegranates, beetroot, hibiscus, and roses. 20 There are no references to the production of lipstick with Canna indica and Royal Poinciana flowers. The phytochemical analysis of Royal's ethanolic extractPoinciana and Canna indica was done successfully forUnderstanding its nutritive value as well as different Pharmacological aspects and most important for lipstick Preparation is the presence of coloring agent i.e. Anthocyanin. 20

Fig. delonix regia flower 11

Excipient use in formulation
Waxes
Beeswax
Derived from honeycomb, beeswax offers a creamy texture and acts as a natural emulsifier, helping to bind oils and pigments.

Fig. Beeswax

Butter
Natural Butters Used in Lipstick Formulations
Natural butters are widely used in lipstick formulations for their emollient, moisturizing, and skin-nourishing properties.

They help improve the texture, stability, and overall performance of the product. 15

Fig. Natural Butter

Emollient

Here is a concise explanation of the uses of emollients in herbal lipstick formulation, along with references from credible scientific sources:

Uses of Emollients in Herbal Lipstick Formulation

1. Moisturizing Effect
   Emollients help maintain lip hydration by forming a barrier that prevents transepidermal water loss. This is crucial in lip care, especially in herbal lipsticks that aim to be gentle and nourishing.
2. Improved Texture and Spreadability
   Emollients contribute to the smooth texture and ease of application of the lipstick. They reduce friction, making the product glide easily over the lips.
3. Enhance Sensory Properties
   They improve the feel of the lipstick on the lips by providing a soft, non-greasy, and soothing effect.
4. Pigment Dispersion
   Natural oils and butters, commonly used as emollients, aid in uniform pigment dispersion, ensuring consistent color coverage.
5. Stabilization of Lipid Base
   Emollients help stabilize the wax-oil base in lipstick, contributing to a consistent product structure and preventing phase separation. 12

Fig. Castor Oil

Preservatives

In herbal lipstick formulations, preservatives are essential to ensure product safety, stability, and shelf life by inhibiting microbial growth. Commonly used preservatives in such natural or herbal formulations aim to be mild, non-toxic, and ideally plant-derived. Here are some preservatives used in herbal lipstick formulations:
Sodium benzoate is antimicrobial agent effective at acidic pH.Salt of benzoic acid, occurs naturally in some fruits. 21

Coloring Agent

The flowers and seeds of Delonix regia contain various phytochemicals, including flavonoids, phenolic acid ,alkaloids. These can be extracted using solvents like methanol and then used as natural colorants in the lipstick formulation. 22

METHODOLOGY

Formulation Table

Table. No 1 Formulation Table

Sr. No.	Ingredients	Quantity	Category
1.	Beeswax	3.0 gm	Base/hardner
2.	Castor oil	4.0ml	Emollient/gloss
3.	Delonix regia flower extract (powder or infused oil)	1.0ml	Natural colorant/antipigmentetic agent
4.	Lemon oil	0.5ml	Emollient
5.	Sodium benzoate	0.5mg	Preservative

Procedure

1. Add poweder gulmohar flower to 70% ethanol
2. Let it soak (macerate) at room temperature for 24-48 hours with occasional shaking.
3. Filter through muslin cloth or Filter paper .
4. Concentration under reduced pressure using a rotory evaporator or mild Heating at <40 degree
5. Store extract in an amber bottle protection from light.
6. Melt and combine the raw materials for the recipe in order of melting point first.
7. Use separate stainless steel or ceramic containers to heat the solvents, oils, and waxes.
8. After that, combine liquid and solvent with the colour pigments.

G. Then, after cooling, pour this into tubing moulds, remove the lipstick from the mould, and put it in the lipstick container.

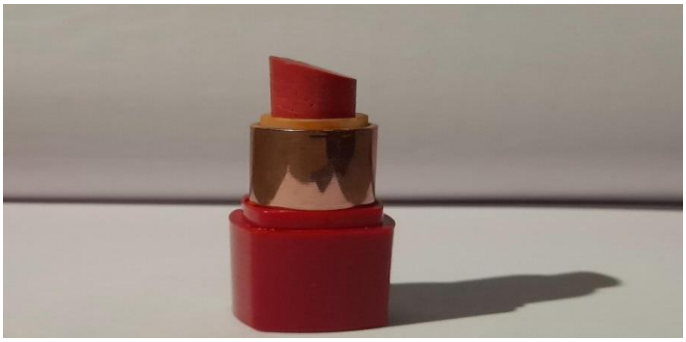

Fig. Formulation

Evaluation test

Melting point

Determination of melting point is important as it is an indication of the limit of safe storage. The melting point of formulated lipstick

Was determined by capillary tube method, the capillary was filled and keep in the capillary apparatus and firstly observed the product

Was slowly-slowly melted. After sometimes observation product was completely melted. The above procedure was done in 2 times And the melting point ratio was observed in all formulations.

Solubility test

The formulation herbal lipstick was dissolved in various solvents to observe the solubility

PH

The pH of formulated herbal lipstick was determined using pH meter.

Breaking Point

Breaking point was done to determine the strength of lipstick. The lipstick was held horizontally in a socket inch away from the Edge of support. The weight was gradually increased by a specific value (10 gm) at specific interval of 30 second and weight at Which breaks was considered as the breaking point.

Skin Irritation Test: -

It is carried out by applying the product on the skin for 10 min.

RESULT AND DISCUSSION

Table No. 2 Evaluation Parameters

Sr.no	Evaluation parameters	Herbal Lipstick Formulation	Standard value
1.	Colour	Pink red	Pink red
2.	Texture	Smooth	Smooth
3.	PH	6.2	6.4
4.	Melting point	60-64°C	60-66°C
5.	Breaking point	120g	140g
6.	Skin Irritation	No	No

The effect of different natural ingredients on different evaluation parameters in the formulation have been investigated. The prepared lipsticks were evaluated and hence from present investigation it was concluded that this formulated herbalLipstick having minimal or no side effects and thus showing maximum local effect on lips.

CONCLUSION

The present study successfully demonstrated the formulation and evaluation of a herbal lipstick using Delonix regia flower extract as a natural colorant. The formulated lipsticks exhibited desirable characteristics such as smooth texture, acceptable spreadability, good hardness, and adequate melting point, comparable to commercially available products. The herbal lipstick also showed stability under various storage conditions and did not cause any irritation or adverse effects, suggesting its safety for topical use.

The incorporation of delonix regia not only provided a vibrant, Qq color but also contributed potential antioxidant and skin-beneficial properties, making it a promising natural alternative to synthetic ingredients in cosmetic formulations. This study supports the potential of Delonix regia as a viable herbal component for eco-friendly and skin-safe cosmetic products.

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